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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PHILIPP KROPF and RALPH HERTEL

Appeal 2009-013503
Application 10/597,847
Technology Center 3700

Before WILLIAM F. PATE III, LINDA E. HORNER, and
GAY ANN SPAHN, *Administrative Patent Judges*.

SPAHN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Philipp Kropf and Ralph Hertel (Appellants) seek our review under 35 U.S.C. § 134 of the final rejection of claims 18-36 and 40-42. Appellants cancelled claims 1-17 and 37-39. We have jurisdiction under 35 U.S.C. § 6(b).

The Invention

The claimed invention is to a prosthesis for replacing a surface of a ball of a ball-and-socket joint and a procedure for implantation of a prosthesis in a bone. Claim 18, reproduced below, with emphasis added, is illustrative of the subject matter on appeal.

18. A prosthesis for replacing a surface of a ball of a ball-and-socket joint comprising:
a spherical shell section having an outer surface that is configured to lie in an articular fossa and for attachment to a surface, the shell section having a cavity for receiving a bone end; and
a crown that partitions the cavity of the shell section into first and second cavities adapted to receive the bone end;
wherein the shell section comprises less than a hemisphere and *a free edge of the crown lies in the same plane as a free edge of the shell section.*

Independent claim 36 is similar to independent claim 18, except that instead of the free edges of the crown and shell section lying in the same plane, it recites that “a free edge of the crown does not intersect a plane in which a free edge of the shell lies.”

Independent claim 41 is a method claim comprising a step of providing a prosthesis similar to the one recited in independent claim 18, including that the free edges of the crown and shell section are coplanar.

The Rejections

The following Examiner's rejection is before us for review:

Claims 18-36 and 40-42¹ are rejected under 35 U.S.C. § 103(a) as unpatentable over Sutter (U.S. Patent No. 4,328,593, issued May 11, 1982) and Lakin (U.S. Patent Application Publication No. 2003/0163202 A1, issued Aug. 28, 2003).

SUMMARY OF DECISION

We AFFIRM-IN-PART.

OPINION

Obviousness based on Sutter and Lakin

Claims 18-35, 41, and 42

The Examiner finds that Sutter discloses the subject matter of independent claims 18 and 41 substantially as claimed, except that Sutter fails to disclose that a free edge of the crown lies in the same plane as a free edge of the shell section. Ans. 3 and 7-8. The Examiner also finds that since Sutter discloses "the distance *s* is at most 50% and preferably at most 40% of length *L*," the free edge of the crown 7 lies in the same plane when the distance *s* is zero and Sutter supports this by giving a range of distances *s* between zero and 40% or 50%. Ans. 4. In the alternative, the Examiner concludes that since Sutter discloses that "[t]he inner length *L* of the sleeve and the distance *s* are dimensioned so that the sleeve 7 does not extend up the main vein strand designated 11g in Fig. 6," it would have been obvious

¹ We have removed claims 37-39 from the Examiner's ground of rejection since these claims were cancelled by Appellants.

to a person of ordinary skill in the art to modify the length of the crown 7 so that s is zero in order to accommodate different patient anatomy and make the amount of healthy bone tissue required to be resected be as small as possible. *Id.* In response to Appellants' argument that Sutter's crown (sleeve 7) must extend out of the shell section (cap 3) by a minimum distance s and thus, teaches away from a free edge of the crown (sleeve 7) ending coplanarly with a free edge of the shell section (cap 3), the Examiner notes that Sutter never explicitly states that the sleeve 7 must extend out of the cap 3. Ans. 8.

Appellants contend that Sutter fails to teach or suggest a prosthesis wherein "a free edge of the crown lies in the same plane as a free edge of the shell section," as required by claims 18 and 41. App. Br. 5 and 7. Indeed, Appellants argue that although Sutter discloses the distance s may vary, there is no teaching or suggestion that the distance s is zero in order for the free edges of the crown (sleeve 7) and the shell section (cap 3) to be coplanar. App. Br. 5. Additionally, Appellants assert that modifying Sutter's crown (sleeve 7) so that it does not extend out of the shell section (cap 3) would be detrimental and contrary to Sutter's teachings, since Sutter specifically states that "[s]ince sleeve 7 protrudes deeper in the femur by the amount s than the latter is embraced by the cap, *the risk that the femur will be sheared off at the edge 3b of cap 3 with large forces acting transverse to the rotational symmetry axis 5 is very small.*" App. Br. 6.

We agree with Appellants. Sutter never contemplates that the distance s equals zero because then the free edge of the sleeve 7 would not extend outwardly from the free edge of the cap and the femur bone would be subject to shearing off at the edge 3b of the cap. *See* Sutter, col. 7, ll. 19-23.

Since Sutter has a compelling reason why the distance s should not equal zero, we do not agree with the Examiner that Sutter either discloses that the distance s is zero or that a person of ordinary skill in the art would modify Sutter's crown (sleeve 7) to make the distance s equal to zero in order for the free edge of the crown (sleeve 7) to be coplanar with the free edge of the shell section (cap 3).

In view of the foregoing, we do not sustain the Examiner's rejection of claims 18-35, 41, and 42 under 35 U.S.C. § 103(a) as unpatentable over Sutter and Lakin.

Claims 36 and 40

The Examiner finds that Sutter discloses the subject matter of independent claim 36 substantially as claimed including that "a free edge of the crown does not intersect a plane in which a free edge of the shell section lies." Ans. 7. The Examiner also finds that Sutter fails to disclose that the shell section comprises less than a hemisphere, but that Lakin discloses a prosthesis having a shell section which comprises less than a hemisphere. *Id.* The Examiner concludes that it would have been obvious to one of ordinary skill in the art to modify Sutter's shell section to be less than a hemisphere as taught by Lakin in order to minimize the amount of bone tissue resection. Ans. 4 and 7.

Appellants contend that Sutter fails to teach or suggest a crown (sleeve 7) wherein "a free edge [thereof] does not intersect a plane in which a free edge of the shell section lies," as recited in claim 36, and that Lakin fails to cure this deficiency. App. Br. 8. Appellants also contend that Lakin does not teach a "shell section having a cavity for receiving a bone end" wherein "a shell section comprises less than a hemisphere and a free edge of

the crown does not intersect a plane in which a free edge of the shell section lies,” as recited in claim 36. *Id.* Finally, Appellants contend that neither Sutter nor Lakin, taken alone or in combination, teach or suggest “a spherical shell section having an outer surface configured to lie in an articular fossa and for attachment to a surface, the shell section having a cavity for receiving a bone end” wherein “the shell section comprises less than a hemisphere and a free edge of the crown does not intersect a plane in which a free edge of the shell section lies,” as recited in claim 36. App. Br. 6.

We agree with the Examiner that Sutter discloses the free edge of the crown (sleeve 7) does not intersect a plane in which the free edge of the shell section (cap 3) lies. As shown in the Examiner’s illustration on the bottom of page 10 of the Examiner’s Answer, the free edges of both the crown (sleeve 7) and the shell section (cap 3) lie in parallel planes that do not intersect. In addition, with respect to Appellants’ argument that Lakin does not teach a “shell section having a cavity for receiving a bone end,” we first note that the Examiner did not use Lakin to teach this feature, but rather found that Sutter discloses a shell section (cap 3) having a cavity (inner lateral area or section 3c) capable of receiving a bone end. *See* Ans.8. Second, we also note that Appellants appear to be arguing the references individually and have failed to address the combined teachings of the references upon which the Examiner’s rejection was based. *See In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (One cannot show nonobviousness by attacking references individually where the rejections are based on a combination of references.). The relevant inquiry is whether the claimed subject matter would have been obvious to those of ordinary skill in

the art in light of the *combined teachings* of those references. *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981). Here, the claimed subject matter of a less than hemispherical shell section having a cavity for receiving a bone would have been obvious to a person of ordinary skill in the art in light of the combined teachings of Sutter's shell section (cap 3) which has a cavity (inner lateral area or section 3c) capable of receiving a bone and Lakin's less than hemispherical shell section.

In view of the foregoing, we sustain the Examiner's rejection of claims 36 and 40 under 35 U.S.C. § 103(a) as unpatentable over Sutter and Lakin.

DECISION

We reverse the Examiner's rejection of claims 18-35, 41, and 42 under 35 U.S.C. § 103(a) as unpatentable over Sutter and Lakin.

We affirm the Examiner's rejection of claims 36 and 40 under 35 U.S.C. § 103(a) as unpatentable over Sutter and Lakin.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2007).

AFFIRMED-IN-PART

Klh